

Toxicity of dillapiole-based essential oil to *Diaphorina citri* Kuwayama nymphs and *Tamarixia radiata* (Waterston) adults

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The Asian citrus psyllid *Diaphorina citri* Kuwayama (Hemiptera: Liviidae) is one of the main pests of world citriculture, since it is a vector of the phloem-limited bacteria *Candidatus Liberibacter* spp. associated with huanglongbing (HLB). For this reason, the population control of *D. citri* with wide-spectrum insecticides has been one of the main tools used by growers to reduce the psyllid population and the disease spread in the citrus groves. Despite the high efficacy, the overuse of insecticides can affect the effectiveness of natural enemies [especially *Tamarixia radiata* (Waterston) (Hymenoptera: Eulophidae), a nymphal ectoparasitoid of *D. citri*, and favor the process of selection of resistant population to the insecticides, target-pest resurgence and secondary pest outbreaks. In this way, crude extracts or plant secondary metabolites have been an important alternative for the management of arthropod pest in different crops. Among the bioactive compounds, the dillapiole-based essential oil has demonstrated a high efficacy against several sucking insects of agricultural importance. Thus, the acute toxicity levels of dillapiole-based essential oil (79% dillapiole, obtained from leaves and branches of *Piper aduncum* L.) on *D. citri* fifth instar nymphs and *T. radiata* adults were assessed under laboratory conditions. The results showed that dillapiole-based essential oil caused high acute toxicity to *D. citri* fifth instar nymphs and *T. radiata* adults. The lethal concentrations (CL50 and CL90) were 0.14 and 0.48% dillapiole-based essential oil for *D. citri* fifth instar nymphs, and 0.40 and 0.96% for *T. radiata* adults, respectively. Based on the mean lethal concentration (LC50), *D. citri* fifth instar nymphs were 2.86-fold more susceptible to the dillapiole-based essential oil than *T. radiata* adults. Therefore, the dillapiole-based essential oil could be an important tool for the *D. citri* management in dooryards from rural and urban areas.

Palavras-chave: Asian citrus psyllid; nymphal ectoparasitoid; *Piper aduncum* L.

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